

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 06-061276  
(43)Date of publication of application : 04.03.1994

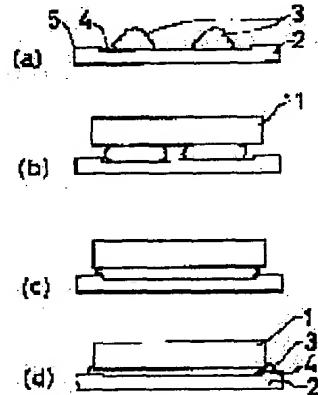
(51)Int.Cl.	H01L 21/52 H01L 23/50
(21)Application number : 04-210208	(71)Applicant : MATSUSHITA ELECTRON CORP
(22)Date of filing : 06.08.1992	(72)Inventor : MATSUURA MASAMI

## (54) LEAD FRAME

### (57)Abstract:

**PURPOSE:** To provide a lead frame which can equalize and stabilize the thickness of paste film of a semiconductor chip, and can control the direction of flow of paste and the fluidity in the case that the spread of paste is required.

**CONSTITUTION:** A recess 4 is made in the bonding face where the semiconductor chip 1 of a die pad 2 is bonded, and a projection 5 is made around the recess 4. Paste 3 is applied in the recess 4 and as the semiconductor chip 1 is pressed down to the side of the recess 4, a paste bank is made in the recess 4, and the thickness of a film is secured, according to the depth of the recess 4, so surplus paste 3 flows over the projection 5, whereby the film thickness of the paste 3 becomes equal and stable.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

\* NOTICES \*

The Japanese Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**CLAIMS**

---

[Claim(s)]

[Claim 1] The leadframe characterized by forming the heights which the concavity and semiconductor chip which are the leadframe which a semiconductor chip pastes up and serve as paste-like adhesives \*\*\*\* with the adhesives of the shape of a paste applied on die putt in the adhesion side with the semiconductor chip of the aforementioned die putt contact.

[Claim 2] The leadframe characterized by forming the slitting slot on the radial where it is the leadframe which a semiconductor chip pastes up, and paste-like adhesives flow into the semiconductor chip adhesion side of the aforementioned die putt with the adhesives of the shape of a paste applied on die putt.

---

[Translation done.]

\* NOTICES \*

The Japanese Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

**DETAILED DESCRIPTION**

**[Detailed Description of the Invention]**

**[0001]**

**[Field of the Invention]** This invention relates to the leadframe which the semiconductor chip by which dicing was carried out fixes with paste-like adhesives.

**[0002]**

**[Description of the Prior Art]** Although the semiconductor chip cut and separated according to the dicing process fixes in the leadframe used as a package base, the fixed position arrangement of a chip is performed by the so-called GRU \*\*\*\*\* method at this die bond process. For example, as shown in drawing 4, a semiconductor chip 1 is pasted up by the GRU \*\*\*\*\* agent (henceforth a paste) 3 which is the adhesives of the shape of a paste applied on the die putt 2 in a leadframe.

**[0003]**

**[Problem(s) to be Solved by the Invention]** However, in the above-mentioned GRU \*\*\*\*\* method, a pressure, amplitude vibration, etc. were added to the semiconductor chip 1, and there was a trouble where it was difficult to extend a paste 3, securing thickness equally, and it could not attain uniform stabilization of the thickness of a paste 3. This is because the equal load when being able to control neither the orientation of a sink of a paste nor its fluidity, but pressurizing the parallelism of the die putt 2 and the chip 1 and the chip 1 was not securable.

**[0004]** Therefore, the purpose of this invention is offering the leadframe which can control the orientation of a sink of a paste, and its fluidity, when uniform stabilization of the thickness of a paste can be attained and the breadth nature of a paste is needed in case of adhesion of a semiconductor chip.

**[0005]**

**[Means for Solving the Problem]** A leadframe according to claim 1 is a leadframe which a semiconductor chip pastes up with the adhesives of the shape of a paste applied on die putt, and the heights which the concavity and semiconductor chip which serve as paste-like adhesives \*\*\*\* in the adhesion side with the semiconductor chip of die putt contact is formed.

**[0006]** A leadframe according to claim 2 is a leadframe which a semiconductor chip pastes up with the adhesives of the shape of a paste applied on die putt, and the slitting slot on the radial where paste-like adhesives flow into the semiconductor chip adhesion side of die putt is formed.

**[0007]**

**[Function]** Since the heights which the concavity and semiconductor chip used as paste \*\*\*\* contact is formed according to the configuration of a claim 1, \*\*\*\* of a paste is formed between a concavity or a heights, and the thickness of a paste is uniformly secured by the height of the depth of a concavity, or a heights. Since the slitting slot on the radial where a paste flows in is formed according to the configuration of a claim 2, if a paste is applied to an adhesion core and the semiconductor chip is depressed to the die putt side, a paste flows into a slitting slot, along this slot, can be extended, goes, and is diffused quickly uniformly. Thus, since Mizobe of a radial becomes the flow path of a paste, the orientation of a sink of a paste, a thickness, and a fluidity are controllable by the sense and depth of flute of a slot, and

width of face to form.

[0008]

[Example] Hereafter, it explains, referring to a drawing about the example of this invention. Drawing 1 is drawing showing the die bond process of pasting up a semiconductor chip 1 on the die putt 2 of the leadframe which is the 1st example of this invention. A concavity 4 is formed in the adhesion side which pastes up the semiconductor chip 1 of the die putt 2 of this example, and the heights 5 is formed in the periphery of a concavity 4.

[0009] In order to paste up a semiconductor chip 1 on this die putt 2, as shown in this drawing (a), a paste 3 is first applied to a concavity 4. Next, as shown in this drawing (b) and (c), a semiconductor chip 1 is depressed to a concavity 4 side, amplitude vibration is added, and the paste 3 is lengthened. At this time, paste \*\*\*\*\* will be made to a concavity 4, a thickness will be secured according to the depth of a concavity 4, and the excessive paste 3 is flowing into a heights 5 side, and the thickness of a paste 3 is stabilized and is formed (this drawing (d)).

[0010] Drawing 2 is drawing showing the die bond process of pasting up a semiconductor chip 1 on the die putt 2 of the leadframe which is the 2nd example of this invention. The heights 5 of three points or four points or more which contacts a semiconductor chip 1 is formed in the adhesion side which pastes up the semiconductor chip 1 of the die putt 2 of this example. In order to paste up a semiconductor chip 1 on this die putt 2, as shown in this drawing (a), a paste 3 is first applied to the concavity 4 between heightss 5. Next, as shown in this drawing (b) and (c), a semiconductor chip 1 is depressed to a heights 5 side, amplitude vibration is added, and the paste 3 is lengthened. At this time, paste \*\*\*\*\* will be made to the concavity 4 between heightss 5, a thickness will be secured by the height of a heights 5, and the excessive paste 3 is flowing out of a heights 5 into the periphery section, and the thickness of a paste 3 is stabilized and is formed (this drawing (d)).

[0011] Drawing 3 is a perspective diagram showing the configuration of the die putt 2 of the leadframe which is the 3rd example of this invention. It cuts deeply from an adhesion center to a radial toward the circumference section, and the slot 6 is formed in the adhesion side which pastes up the semiconductor chip 1 of the die putt 2 of this example. In order to paste up a semiconductor chip 1 on this die putt 2, a paste is applied to an adhesion core, a semiconductor chip 1 is depressed to the die putt 2 side, amplitude vibration is added, and the paste 3 is lengthened. At this time, a paste 3 flows into the slitting slot 6, along this slot 6, can be extended, goes, and is diffused quickly uniformly. Therefore, if the formation orientation, the depth, and the number of books of this slitting slot 6 are decided suitably and formed suitably, the orientation of a sink of a paste and a thickness fluidity are controllable.

[0012] In the example of this invention, as described above, according to these depths and heights, the thickness of a paste 3 is uniformly securable by adjusting the depth of a concavity 4 and the height of a heights 5 which are formed in the die putt 2. Moreover, since this slot 6 serves as the flow path of a paste by forming the slitting slot 6 when the breadth nature of a paste 3 is needed, the orientation of a sink of a paste, a thickness, and a fluidity are controllable by the sense and depth-of-flute width of face of a slot to form.

[0013]

[Effect of the Invention] According to the leadframe of this invention, in the die bond process that it can set as a semiconductor erector, in case a semiconductor chip is pasted up on die putt, uniform stabilization of the thickness of a paste and the semiconductor device with the reliability high since it spreads and enhancement in a sex can be aimed at stabilized more can be obtained.

---

[Translation done.]

\* NOTICES \*

The Japanese Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.

2. \*\*\*\* shows the word which can not be translated.

3. In the drawings, any words are not translated.

---

## DESCRIPTION OF DRAWINGS

---

### [Brief Description of the Drawings]

[Drawing 1] It is drawing showing the die bond process of pasting up a semiconductor chip 1 on the die putt 2 of the leadframe which is the 1st example of this invention.

[Drawing 2] Drawing 2 is drawing showing the die bond process of pasting up a semiconductor chip 1 on the die putt 2 of the leadframe which is the 2nd example of this invention.

[Drawing 3] It is the perspective diagram showing the configuration of the die putt 2 of the leadframe which is the 3rd example of this invention.

[Drawing 4] It is the cross section showing the configuration of the conventional example.

### [Description of Notations]

1 Semiconductor Chip

2 Die Putt

3 Paste

4 Concavity

5 Heights

6 Slitting Slot

---

[Translation done.]

